

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)
2. (Canceled)
3. (Currently Amended) The method according to claim +12 wherein the ~~classified and crushed spent potliner is positioned in~~furnace is a rotary kiln into which air is introduced to ensure an oxygen enriched environment.
4. (Original) The method according to claim 3 comprising using thermocouples to control the temperature of the kiln.
5. (Previously Presented) The method according to claim 3 comprising directing jets of air into the kiln to prevent agglomeration.
6. (Currently Amended) The method according to claim +12 comprising exposing the wet mixture in a pile to ambient conditions between 5 and 20°C in a well ventilated location.
7. (Original) The method according to claim 6 comprising mixing the pile on a daily basis with total exposure being up to four weeks.
8. (Currently Amended and deemed withdrawn) A plant for processing spent potliners according to the method of claim +12.
9. (Currently Amended and deemed withdrawn) Mineral products comprising chemicals and minerals blended with residue treated by the method in accordance with claim +12.

10. (Original and deemed withdrawn) A mineral product according to claim 9 wherein the treated residue is blended with refractory brick waste, crushed anode carbon, dross powder and supplemented with black and/or brown coal and sand in proportion varying in accordance with the end use of the mineral product.

11. (Currently Amended) The method according to claim ~~1-12~~ further comprising blending the cured residue with other chemicals and minerals to provide useful mineral products.

12. (New) A method of treating a spent potliner after use in an aluminum smelting process for the production of non-toxic mineral products, the method comprising crushing and classifying the spent potliner, placing the classified and crushed spent potliner in a furnace, adding no more than air to the furnace, heating the spent potliner in the furnace to a temperature greater than 450°C to oxidize the spent potliner and less than a temperature at which fluorides enter the gaseous phase to minimize fluoride volitization, mixing the hot product from the furnace with water at a substantially lower temperature to produce reaction gases and residue, destroying flammable gases in the reaction gases by burning, and mixing the residue with water in a well ventilated area for a period of weeks to cure and further detoxify the residue, whereby the non-toxic residue becomes available for the production of non-toxic mineral products.